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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,701	03/10/2004	Dmitry Voloschenko	IS01559 AP	4323

22917 7590 04/05/2005

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EXAMINER

MARTINEZ, JOSEPH P

ART UNIT	PAPER NUMBER
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2873

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/797,701	Applicant(s) VOLOSCHENKO ET AL.	
	Examiner Joseph P. Martinez	Art Unit 2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2 and 4-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Allowable Subject Matter

The indicated allowability of claims 18-20 is withdrawn in view of the newly discovered reference(s) to Taniguchi et al. (5162928), Matsumoto et al. (5748377) and Stringfellow (6359737). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 2 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi et al. (5162928) in view of Matsumoto et al. (5748377).

Re claim 1, Taniguchi et al. teaches for example in fig. 2 and 3, a head-up display containing a plurality of elements optically coupled along an optical path, the display comprising: an image source (2 and 10, col. 4, ln. 23-27) that emits a visible light (4) for generating an image (col. 4, ln. 23-27); a means for diffusing light (3) that receives the visible light from the image source to project the transmitted generated image thereon (col. 4, ln. 22); and a holographic element (5, col. 3, ln. 63-66) that

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receives the generated image from the means for diffusing light for producing a virtual image therefrom (col. 4, ln. 40-44).

But, Taniguchi et al. fails to explicitly teach the holographic element provides magnification for the image thereon.

However, within the same field of endeavor, Matsumoto et al. teaches for example in fig. 7, the holographic element (18) provides magnification for the image thereon (col. 5, ln. 25-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Taniguchi et al. with the holographic element of Matsumoto et al. in order to provide an enlarged view.

Re claim 2, Taniguchi et al. further teaches for example, the means for diffusing light provides adjustable gain (col. 5, ln. 53-65, wherein the office interprets increasing the quantity of light 2-4 times to disclose the claimed limitation) to the image thereon.

Re claim 8, Taniguchi et al. further teaches for example in fig. 2, optical elements (6 and 5) disposed in the optical path after the means for diffusing light (3), wherein an exit cone (4 at λ_2) of light from the means for diffusing light is substantially captured (wherein the office interprets fig. 2 to disclose the light beam 4 to be captured by the hologram 5) by an acceptance angle of the optical elements.

Re claim 9, Matsumoto et al. further teaches for example, the scanner is configured to pre-distort the generated image to compensate for distortions in the optical path (col. 5, ln. 22-24).

Re claim 10, Matsumoto et al. further teaches for example in fig. 12, the means for diffusing light (34) is configured in a non-flat shape (col. 6, ln. 16-17) to compensate for aberrations in the optical path (col. 6, ln. 22-23 and col. 4, ln. 19-21).

2. Claims 4-7, 11, 12, 15, 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi et al. (5162928) in view of Stringfellow (6359737).

Re claims 4, 11 and 18, Taniguchi et al. teaches for example in fig. 2 and 3, a head-up display for a vehicle containing a plurality of elements optically coupled along an optical path, the display comprising: a laser scanner (2) that emits a raster scan (col. 4, ln. 4-8) of visible light (4) to generate an image; a means for diffusing light (3) placed in an intermediate plane of the optical path that receives the visible light from the laser scanner to project (col. 4, ln. 22) and apply adjustable gain (col. 5, ln. 53-65, wherein the office interprets increasing the quantity of light 2-4 times to disclose the claimed limitation) to the image generated thereon; and a holographic element (5) placed between the laser scanner and a driver of the vehicle (7), receiving the image to produce a virtual image from the generated image (col. 4, ln. 40-44) therefrom, the head-up display being operable to project the image to a driver (7) within the vehicle

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(col. 1, ln. 20-21, wherein the office interprets the teachings to suggest use in a vehicle) in a way to provide a virtual image at a predetermined distance ahead of the windshield (col. 4, ln. 40-44).

But, Taniguchi et al. fails to explicitly teach using a windshield of a vehicle.

However, Taniguchi et al. teaches the use of the holographic element 5 to be mounted on a glass or plastic transparent support, and within the same field of endeavor, Stringfellow teaches for example in fig. 1, using a windshield (16) of a vehicle to provide a virtual image (18).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Taniguchi et al. to include the windshield of Stringfellow in order to produce a virtual image that is viewable by the vehicle operator without diversion from the outside scene, as taught by Stringfellow (col. 1, ln. 31-34).

Re claim 5, Taniguchi et al. in view of Stringfellow teach the head-up display as disclosed above.

But, Taniguchi et al. in view of Stringfellow fail to explicitly teach the means for diffusing light and a driver's viewing angle are related by the Bragg condition for the holographic element.

However, the office interprets the Bragg angle to be defined as the angle at which the reflection occurs, as is well known in the art. Furthermore, Taniguchi et al. teaches for example, the beam combiner comprising a hologram 5 and the driver 7

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being able to view the diffused light (fig. 2). Therefore, the office interprets the teachings to disclose that the means for diffusing light and a driver's viewing angle are related by the Bragg condition for the holographic element.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Taniguchi et al. in view of Stringfellow to include a relation by the Bragg condition for the holographic element between the means for diffusing light and a driver's viewing angle in order to show that the driver is able to view the diffused light.

Re claims 6, 7, 12, 15, 19 and 20, Taniguchi et al. further teaches for example in fig. 2 and 3, a holographic element (5, col. 3, ln. 65) incorporates the means for diffusing light (3) which operates to reflect the image to within the vehicle (col. 1, ln. 20-21, wherein the office interprets the teachings to suggest use in a vehicle) in a way to provide a virtual image at a predetermined distance ahead of the windshield (col. 4, ln. 40-44).

But, Taniguchi et al. fails to explicitly teach the element is configured to be located below or on a surface of a windshield of a vehicle in the optical path to project an image from the laser scanner to the windshield.

However, Taniguchi et al. teaches the use of the holographic element 5 to be mounted on a glass or plastic transparent support, and within the same field of endeavor, Stringfellow teaches for example in fig. 1, the element (14) is configured to be located below or on a surface of a windshield (16, wherein the office interprets the

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element to be below and on the surface of the windshield) of a vehicle in the optical path to project an image from the laser scanner to the windshield.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Taniguchi et al. to include the windshield of Stringfellow in order to produce a virtual image that is viewable by the vehicle operator without diversion from the outside scene, as taught by Stringfellow (col. 1, ln. 31-34).

Re claim 16, Taniguchi et al. further teaches for example in fig. 2, optical elements (6 and 5) disposed in the optical path after the means for diffusing light (3), wherein an exit cone (4 at λ_2) of light from the means for diffusing light is substantially captured (wherein the office interprets fig. 2 to disclose the light beam 4 to be captured by the hologram 5) by an acceptance angle of the optical elements.

3. Claims 13, 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi et al. (5162928) in view of Stringfellow (6359737) in further view of Matsumoto et al. (5748377).

Re claim 13, Taniguchi et al. in view of Stringfellow teach the head-up display as disclosed above, including the substantially transparent element is a holographic element (Taniguchi et al., col. 3, ln. 63-66).

But, Taniguchi et al. in view of Stringfellow fails to explicitly teach the holographic element provides magnification for the image thereon.

However, within the same field of endeavor, Matsumoto et al. teaches for example in fig. 7, the holographic element (18) provides magnification for the image thereon (col. 5, ln. 25-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Taniguchi et al. in view of Stringfellow with the holographic element of Matsumoto et al. in order to provide an enlarged view.

Re claim 14, Taniguchi et al. further teaches for example in fig. 2 and 3, the substantially transparent element (5) is a holographic element (col. 3, ln. 65) that incorporates the means for diffusing light (3) which operates to reflect the image to within the vehicle (col. 1, ln. 20-21, wherein the office interprets the teachings to suggest use in a vehicle) in a way to provide a virtual image at a predetermined distance ahead of the windshield (col. 4, ln. 40-44).

But, Taniguchi et al. fails to explicitly teach the element is configured to be located below or on a surface of a windshield of a vehicle in the optical path to project an image from the laser scanner to the windshield.

However, Taniguchi et al. teaches the use of the holographic element 5 to be mounted on a glass or plastic transparent support, and within the same field of endeavor, Stringfellow teaches for example in fig. 1, the element (14) is configured to be

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located below or on a surface of a windshield (16, wherein the office interprets the element to be below and on the surface of the windshield) of a vehicle in the optical path to project an image from the laser scanner to the windshield.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Taniguchi et al. to include the windshield of Stringfellow in order to produce a virtual image that is viewable by the vehicle operator without diversion from the outside scene, as taught by Stringfellow (col. 1, ln. 31-34).

Furthermore, within the same field of endeavor, Matsumoto et al. teaches for example in fig. 7, the holographic element (18) provides magnification for the image thereon (col. 5, ln. 25-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Taniguchi et al. in view of Stringfellow with the holographic element of Matsumoto et al. in order to provide an enlarged view.

Re claim 17, Matsumoto et al. further teaches for example, the scanner is configured to pre-distort the generated image to compensate for distortions in the optical path (col. 5, ln. 22-24).

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph P. Martinez whose telephone number is 571-272-2335. The examiner can normally be reached on M-F 7:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPM
4-1-05


Hung Xuan Dang
Primary Examiner